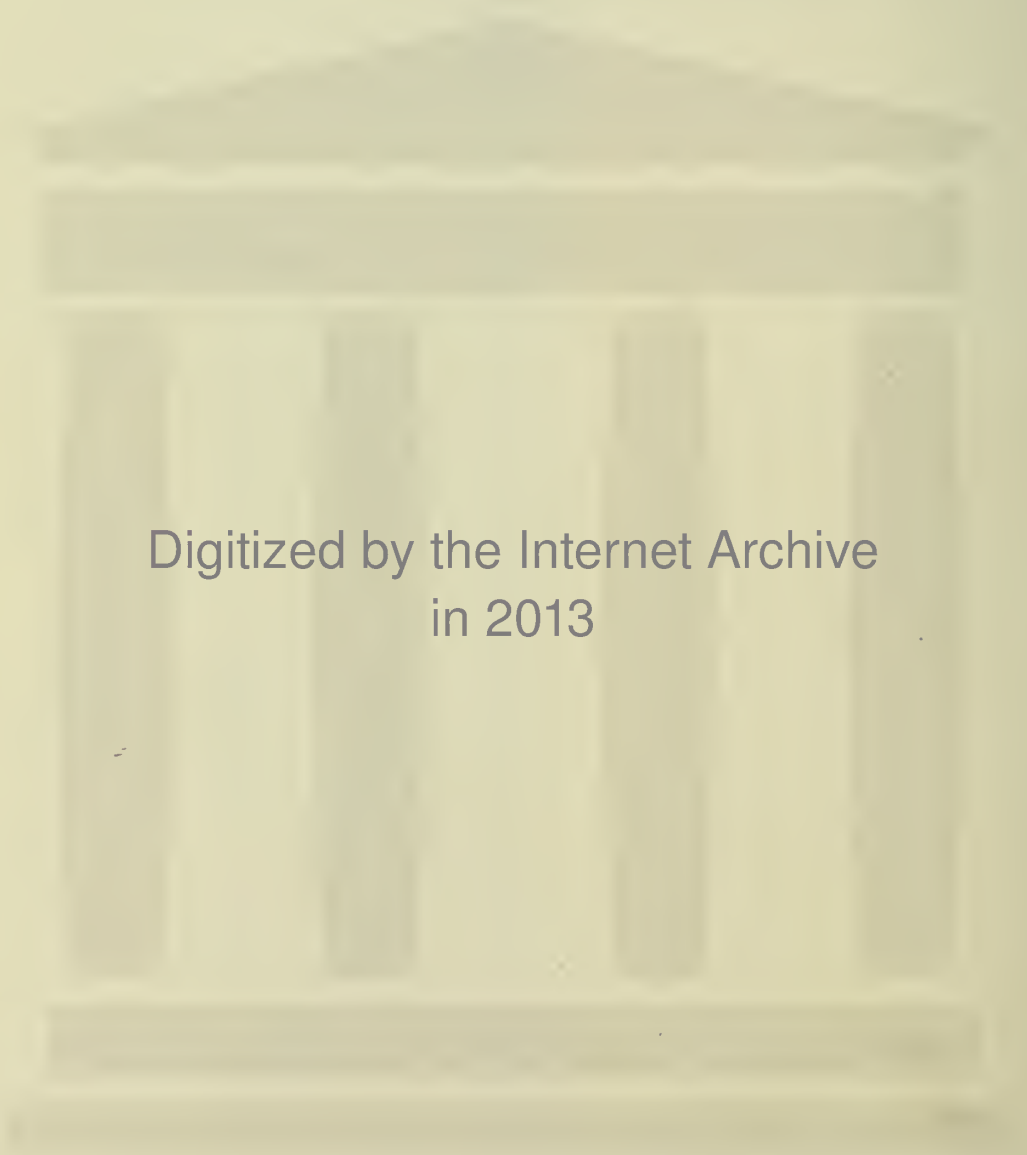
Littleton
The Economic Function of Accountancy



THE ECONOMIC FUNCTION OF ACCOUNTANCY

BY

ANANIAS CHARLES LITTLETON

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I HEREBY RECOMMEND THAT THE THESIS PREPARED UNDER MY SUPERVISION BY [illegible] Charles Littleton

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Warren H. Robinson
In Charge of Thesis

H. T. Scovill acting
Head of Department

Recommendation concurred in*

Committee on Final Examination*

*Required for doctor's degree but not for master's

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Chapter I

Business Administration and Accounting.

Introduction.

It is an accepted truth that the administration of all affairs calling for the exercise of judgement is based upon information. Adequate knowledge of the facts is recognized as fundamental to purposeful action in all of the great divisions of human affairs.

The administrative departments of a government collect data of infinite variety. A State Department, for example, would take no serious step without current information from many sources regarding related circumstances -- data as to actual facts and as to sentiments and tendencies. In the field of Law great consideration is given to ascertaining and presenting the actual facts, the methods employed being laid down at length under the titles of Pleading and of Evidence. No judgement is rendered without the preliminary aid of these devices of information. No doctor attempts to prescribe for a serious ailment until he is possessed of a great fund of information concerning his science in general and, by observation, of a considerable fund of information regarding the case at hand.

In War the same dependence upon knowledge of the facts appears. One whole branch of the service is devoted to the Service of Information. Data are collected by aviators, scouts, and patrols concerning the enemy's numbers, location, terrain. From prisoners and captured records is drawn information of morale, munitions, and equipment. These data and many more are sifted and co-ordinated at headquarters; no movement of importance begins without a foundation in the facts and

estimates of the Intelligence Division.

This brief indication of the importance of such prominent departments of human activity upon current, reliable information tends to establish the opening statement as an acceptable generalization. And it is but natural that the generalization should be extended to that other great department of endeavor -- business.

The successful conduct of business is based as much upon current and reliable information as is the conduct of a government or a military campaign. Data must be had as to possible markets. The traffic studies of the United Cigar Stores Co. are interesting examples of how the choice of markets may be based upon reliable data. Advertising media must be investigated and data securred which will indicate their relative effectiveness per unit of cost and therefore their relative desirability. The condition of the market for purchases must be constantly known, as well as that of the market for sales. Data of price movements for purchased commodities must be compiled currently; the maltster must know the barley market and the miller the wheat, as to price as well as available supply.

These data may be supplimented by statistics of general business conditions. Such statistics as bank clearings, pig iron production, crop prospects, bank loans, etc. serve to indicate the "state of mind" prevailing in the country's business and thereby to give the individual a truer perspective of his own affairs.

Of even greater interest to those in charge of the individual business are data of private financial condition and economic progress. Information must be constantly at hand regarding the state of

the property, that is the form in which the wealth is held, and the progress that is being made in increasing the quantity of that wealth. Data must be readily available to show the extent and nature of the obligations running both to and from the enterprise, and to indicate the extent and character of its internal activities. It is these wealth data that accounting supplies to the organization.

Financial condition and economic progress are both expressions of economic circumstances and changes. A statement of financial condition expresses the state of the organization's wealth -- the character and extent; a statement of economic progress expresses the changes in the quantity of wealth under the control of one enterprise. Facts which have to do with the state of wealth and its changing form or quantity are economic data and as such are expressive of economic principles. It follows, therefore, that the function of accounting should be to interpret the occurrences effecting a business in the light of economic principles.

Administrative Control.

It would seem quite unnecessary to point out that administration must control and direct business activities were it not for the patent fact that thousands of men fail to perceive this truism or else are unable to give it effect in their affairs. One accountant of wide experience gives as his opinion: "Nine out of every ten business failures are the direct result of ignorance of the real conditions which would have been revealed by a proper accounting system." (1)

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(1) Hanner. Factory Accounting, p. 5.

The figures here used are unfortunate for they give the impression of an off-hand statement; they would seem to have been used in the answer of the lawyer for the mere purpose of lending a desired emphasis rather than as the conviction of an expert. And besides, the above statement assumes that the knowledge of the real conditions would be accompanied by a resourcefullness in ways and means of correcting unfavorable conditions. This by no means follows. Inexperienced men are often helpless in the face of adverse situations even though they know what the real conditions are.

The opinion quoted may be ill advised as to wording, but it will no doubt be conceded that its main purport is correct. Men do fail because they do not realize that it is possible to know real conditions and that it is equally possible to control and direct the activities which give rise to them.

The activities which require control may be classified into three groups. First, there are dealings with persons external to the business which result in a change in the form of wealth. These may be termed Financial Activities. In the second group are those dealings with persons external to the business which result in a change in the quantity of wealth as well as form. Those are here termed Economic Activities. Last, there is the group in which the items are called Internal Activities. These are the activities concerned with the utilization of materials and services within the confines of the business itself.

Financial activities consist, for the most part, in the efforts of men to supply the means of conducting business, i.e. capital in various forms. Fixed capital is obtained from investment or long term

loans are usually converted at once into the instruments of production if it has not already attained that form. In the other case, fluid capital, (i.e. working or circulating capital) is converted into raw materials and services of industry, if it does not already exist in that form. Cash is the most representative type of fluid capital; next, of fluid capital, since it can readily be converted into whatever other form of capital the exigencies of the business require. Recently acquired book receivable (i.e. sales not yet collected, as well as the stock in trade or raw material are also readily convertible into cash in the course of business, and hence are fluid capital.

These types of fluid capital are obtained for the most part from the collection of current book receivable and short time loans (including not only cash loans but goods bought on credit). Both of the other two sources -- the sale of fixed capital and long term loans -- are seldom relied upon. Men avail themselves of these sources only upon urgent necessity. The sale of capital assets discloses of instruments which are, presumably advantageous to the business to possess; the long term loans obligate the business to suffer a continued drain for interest long after the effect of the increased fluid capital ceases to be felt.

The capital so secured is used in carrying out the objects of the business -- in providing the means of carrying on the economic and the internal activities.

It should reasonably be seen that the activities attendent upon securing and utilizing these various forms of capital can be controlled, and that the manner of securing and using them will affect final profits. Yet it will be worth while to enumerate some of the

ways in which activities may be, as a matter of fact, controlled to the advantage of the business.

The amount of capital fixed in the form of unnecessary land, buildings, or equipment acts as a drain on profits, placing on the business as it does a dispensable burden on interest to be met out of income, to say nothing of the loss of the opportunity for making profits which would lie in a wiser distribution of capital. A similar result obtains when the amount of fluid capital is excessive or badly proportioned among the various forms in which it is held. Unnecessary accumulation of cash leaves much capital unproductive; large stocks of slowly turning goods and slow collection of accounts and notes receivable reduce the free working capital and have the effect, for that reason, of curtailing production or necessitating additional loans with the attendant interest charges. Reduced cash working capital also has the effect of making the procurement of additional capital difficult and costly because the discharge of previously incurred obligations will become slow.

Proper control will be reflected in profits for it will see to it that there are no unnecessary investments of fixed capital or idle accumulations of fluid capital. The character of land, buildings, and equipment as well as their extent can be controlled by choice; accounts receivable can be collected promptly with a minimum of loss by tact and pressure; discretion can be exercised in granting credit; goods can be turned more rapidly by properly directing the purchase, display and price of them; loans can be kept at a minimum and seasonal in character with attention to the activities in connection with the other sources of fluid capital.

While financial activities are primarily concerned with acts of investment of capital in the larger forms and proportions, economic activities, on the other hand, consist primarily of those acts which provide operating facilities by investing the costs thereof out of capital.

The use of land, facilities or equipment to be obtained by lease if they are not owned, and the rents, royalties, etc., constitute operating costs to be advanced out of working capital. Wages and salaries are advances before completion of production and secure to the business the services of men as executives, clerks, executives, etc. In this same classification is charged the expense of taxes and insurance premiums; professional services of outside firms; direct advertising or appropriate acts of salesmanship. These are typical economic activities viewed from the side of operating costs; there are others to be viewed from the side of operating income.

The actual disposition of goods is the ultimate economic activity -- the act which is the focus of all the others. Costs are incurred only for the purpose of furthering in one way or another this final act; the working capital is allowed to be supplied by successive advances instead of only in the prospect of receiving back an income which shall not only replace the depreciation of fixed capital and the outlay of fluid capital, but also contain a surplus over and above these -- a net income.

In a money economy the effort of every business organization is to produce net income; every act is considered in its bearing upon this single outcome. Net income is the difference between income

and expenditure.(2) Income is the increase in wealth due to the activities of the organization; expenditure is the temporary decrease in wealth occasioned by the effort to secure income.

This being the nature of Income and Expenditure, it follows that every activity which produces any change in the form or quantity of wealth must be carefully scrutinized for the effect it will have upon Net Income. Net Income rises with increased Income and falls with increased expenditure; hence, scrutiny of activities leads us to the simple rule of increasing income and decreasing expenditure. Adjustment must be made with discretion, however, for the mere decrease of expenditure if unwisely made, may result in a decreased income because that particular expenditure might have been indispensible to effective operations. In the words of Roy B. Kester, "Every effort is offset by the cost of that endeavor, and, unless the prime result of the effort be more than its cost, its aim, viz, the increase of net worth, is not accomplished."(3) Where the prime result is already more than the cost, it is dangerous to try to lower the cost except that it first be carefully made sure that the effect will be as a matter of fact advantageous.

Control of net income takes place in the judicious lowering of expenditure for increase of income, attention being paid to the cost of that increase; and control of expenditure for income takes place in the direction of those activities which give rise to them.

The expenditure for labor and building can be controlled at the time the contract act is contemplated by a careful canvass of

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(2) "Expenditure" as here used is not synonymous with "Disbursement." It includes all the outlay of fluid capital for commodities, expenses, services, and depreciation of fixed capital.

(3) Kester: Accounting Theory and Practice -- I. 22.

of the available utilities and by attaining the most desirable type, interior arrangement, etc. consist for cost. The expenditure for light can be controlled by careful selective supervision of employes. Source risk of income, control can be exercised by judicious advertising, discretion in credit applications for credit and by lawful means.

The third group of activities, termed internal, remains for consideration. It consists primarily of the use or utilization of the instruments provided by financial activities and the service facilities provided by economic activities.

Utilization of instruments, materials and services is carried on fully within the organization. These internal activities are not, like those of the other two classes, exchanges involving parties outside of the organization itself. Although some writers on accounting employ the fiction of exchanges between internal units of the business to explain these activities, they do so merely to bridge all bookkeeping entries under one rule-of-thumb, namely, that all entries shall express an exchange of equals, and thus they introduce the phenomenon of debit and credit. The true nature of the entries for this third class of activities is that of an adjustment of the record which is made necessary by some internal activity.

While there is possible economy in making discriminating financial arrangements and operating expenditures, much more is possible in the wise direction of internal operations. In the use of the building, for example, it makes a great deal of difference to net income whether the manufacturing process begins with the raw material on the top or on the ground floor. The arrangements of machines in proper sequence

may mean great economy in time and energy in moving material from place to place. And so, too, with elimination of waste time and material. Allowing machines to run idle uses power wastefully; leaving lights burning over night wastefully uses current; allowing men to be without work wastes the cost of their wages; a wage system based upon the time element instead of the production element may be a costly one; the use of highly paid labor where a cheaper man would do as well is not good management.

All of these activities can be controlled. Machines can be scientifically grouped; employes kept busy by planning the work ahead; material and product can be rigidly inspected; the effectiveness of different grades of labor can be studied. If these activities, which unindirectedlead to waste and loss, can be controlled, the net income can be controlled accordingly, for these are some of the elements which produce net income. The men who have given industry "Scientific Management" have devoted all or most all of their attention to this problem of controlling internal activities.

Taken together these many activities --grouped as Financial, Economic, and Internal -- constitute the activities of business. They constitute a sort of continious flow around a circle. Cash is converted into equipment, materials, services. These are combined to give the product; it in turn becomes a debt receivable, later to be collected in cash. This cash is used to discharge accumulated obligations incurred during the process and in the outright purchase of materials and services. Then the sequence is repeated.

At one point in its flow about the circle, wealth receives an increment which is called profit. This increment is the

entrepreneur's recompense. It may be paid off, to use a figure of speech, like a mortgage from a part in a lump. However, in order to be taken away without injury to the business it is necessary that the business be in good condition without it. That is to say, it must have sufficient capital without this increment, and the capital must be in the process of being effeciently employed. Should there be a damming of the flow at any point, a strain will appear at another place there to pass on the effect to the profits. In such a case the profit will probably be required in the business.

An example will make the point clearer. Suppose some situation arose -- like a financial panic -- which caused the collection of accounts receivable to be slowed up materially. We would then have wealth banking up in accounts receivable and, being thus made unavailable for the present, a condition would obtain which would make necessary the borrowing of enough to maintain the flow from that point onward. This could only be done at a cost, thus influencing the net income. Accumulated profits might have taken the place of loans in releiving the situation if there had been sufficient forsight to retain a portion of them in the business.

It is controlling this flow of wealth around a circle that claims a large part of the business man's time and attention. He has under his direction, assuming the proper authority, all of the activities which constitute the moving forces that urge the flow forward. By exercising his authority he has it in his power to control those forces and through them, his net income.

Formation of policies.

Control, however, can exist only when there is authority to procure the services and to direct

the utilization of property, forces, or men; that is authority to alter the proportion of one to the other, or to choose the paths they are to follow. It exists when there is authority to make decisions and to set limits. This is the essence of control.

Authority rests upon the institution of private property and upon contract. The authority to direct the utilization of properties, forces or men lies in one or the other of these sources. Property may be owned or rented; in either case there goes with it, by custom and law, the right to control. Natural forces, too, may be owned or rented. This does not mean, of course, that the force of gravity could be parcelled out among the earth's inhabitants, but certainly the force of gravity expressed in a waterfall may be place under the sole direction of an individual. In that sense it may be owned or rented. The services also of men may be owned or rented. Ownership of men's services ordinarily is slavery and as such might be classified as one type of property right. But slavery aside, man has a property right in himself; he is at once the owner and the thing owned and has complete control over his services.(4) Man's services may be rented by ordinary wage agreement.

It is seen from this discussion that, because of the authority granted in the institution of private property and contract rights, the control of activities is possible. But the complete question of this section is not yet answered. Although it has been shown that net income can be influenced by the control of activities and that services can be controlled by authority, yet nothing has been said tending to show that authority will be turned into effective control, that authority will be wisely used.

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(4) Fisher: Nature of Capital and Income -- p. 5.

In order to turn authority into really effective control it is necessary that it be guided by wise policies. Authority indicates the direction control may take; policies indicate the direction control should take. Authority gives the power to alter the boundaries of property to men, but it is policy which determines the proportion men will do. Without policy there could be no utilization of material things; without authority material, no there could be no effective use thereof; without definite plans and control co-ordinating the various activities. Authority can be used to work, but it is policy which directs men what they shall work upon and how and when. Together by definite policies, energy and resources could be applied in unison; authority would exist to control, for it would be without aim or purpose.

Vital as authority is to make control, policy is still more vital when it comes to the question of effective control. And that, in the last analysis, is the only control the entire world is interested in; only effective control can maintain a favorable difference in the level of the income and expenditure.

It is pertinent to inquire concerning the formation of policies since they are of such importance to net income. Two types of policies are discernable: determinative and administrative. Both are framed upon consideration of significant facts in the business world at large and in the particular industry.

Determinative policies deal with the larger aspects of business. They fix the character of the activities -- what shall be made, what shall be carried in stock, where and how the product shall be disposed of. (5) The formation of these policies usually rests in the hands

(5) Church: Science and Practice of Management -- p: 1.

of the proprietor, partners, directors, or executive committee and proposals are not likely to receive much attention when proposals unsupported by facts. A proposal, for example, to devote a part of the plant to the manufacture of shell cases would be considered in its background of general business conditions as well as plant conditions. The state of the money market would throw light upon the matter of financing material and equipment purchases; bank clearings, new building statistics, etc. would indicate something about the probable future demand for the company's usual products.

If consideration of such significant facts as were available indicated a probable falling off in the demand for the usual products and a favorable financial situation, then the proposal begins to gain support. Should it be adopted, it would become a Determinative Policy, the expression of which would call into play Administrative Policies.

Determinative policies, being concerned with only the larger aspects of business are of relatively infrequent appearance; administrative policies, on the other hand, are formed day by day, since they are concerned with the ways and means of giving effect to the determinative policies. It is the concern of administrative policy, for example, to decide such questions as, the choice of the available labor and its disposition within the plant; wages on a piece-work, bonus, or hourly rate basis; eight hour shifts or overtime, and the like. Other similar questions about material and equipment readily suggest themselves.

In the mercantile field many of the same questions arise. The relative proportion of various expenses give rise to administrative policies. High selling cost per unit of sales, for example,

may lead to the establishment of training classes for sales people, or an altered wage system. The amount of returned goods or loss from bad debts may cause a change in credit policy. The proportion of rent to total expense may indicate unsuitable location; the proportion of delivery expense may suggest changing to a "cash and carry" policy, and so on. (7)

Each policy purposes to influence net income. It is doubtless with an eye to income that even welfare policies are adopted, healthy and contented employees are the most profitable ones. And each policy is based upon the recognition of some significant fact or other. Such facts as the amount of returned goods, the amount of spoiled work, the unit cost of sales, the ratio of various expenses to the total, are all full of significance to a trained executive. It is apparent, therefore, that the recognition of significant facts is indispensable in the formation of adequate policies, and hence, in the control of business activities. Policies arise in response to a felt need; the need itself comes into consciousness through the impulse of some fact presented and understood. Without the starting impulse of the facts of the situation, a policy could hardly come into being in regard to it, and, as has been shown, no control can be considered adequate which is not guided by wise policies.

The ability to recognize what is significant and what is not in particular cases is a function of mind and as such has no place in the present discussion. But if facts that contain significance are presented to the executive, accounting has done all it can do, and if

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(7) It may be remarked that expense ratios are being given needed attention and publicity by the Harvard Bureau of Business Research and by the publishers of System magazine. The tabulations of experience in this matter provides a standard of no little value to the business man in controlling his expense.

accountants, out of their experience, [illegible] to have significance in other instances, they have done their duty [illegible], to be sure, there is a specific request for their opinion as to the meaning. But in responding, as they often do, they leave their strictly professional sphere and enter that of the business executive.

Significant facts are those which are signs or symbols for a larger meaning. They stimulate the association of ideas; they epitomize situations; they convey ideas and information in concise form. Mere facts are to be distinguished from significant facts in that the former have a very narrow range of usefulness while the range of usefulness of the latter is very wide. The difference will be seen in a few comparisons.

Occasionally formal reports are found consisting largely of a list of thousands of items of disbursements in chronological order. Each item is indeed a fact, but none of them are of real significance. The isolated fact that, let us say, John Smith was paid $6.40 for blacksmithing has no real significance; there is meaning in this item without significance. Real significance might be found if all of the blacksmithing items were brought together, or if all of John Smith's transactions were summarized. It means nothing to the merchant, that his clerk, Jones, today sold ten yards of muslin, but the fact that Jones sold $2000 worth of goods last month would be of great significance when considered together with other significant facts -- perhaps, in this case, the clerk's salary.

It is by comparison of facts that conclusions are drawn. Mere facts and figures alone mean but little; it requires analysis and comparison to bring out the significance hidden in them. Results are

weighed against efforts; returns against costs; method against method. In the particular field of retailing one writer points out the use of analysis and comparison in these words:

> "But the development of better retailing beyond a certain point can come only through intimate, detailed comparison of elements determined from such an analysis (of expense). The factors favorable to efficiency may thus be isolated in the more successful stores and applied in the administration of the less successful. The leaks, wastes, and abnormal elements may likewise be determined and eliminated." (8)

These examples show the truth of the statement that facts take on significance only when they are accumulated, classified, and compared. It is the work of Statistics to gather, analyse and tabulate facts in groups so that they take on meaning and utility which is foreign to isolated facts. Business offers a large field to statistics but it is only in recent years that business activities have received statistical treatment. Statistics of general business conditions have been critically considered at length by Prof. Mitchell (9) and they are presented and analysed periodically by organizations directed by Mr. Babson of Boston, Mr. Brookmire of New York, and others.

More recently statistical methods have been applied to the facts of interest to individual business enterprises because of their intimate relation to the organizations' activities. The facts considered are both external and internal -- external as to sales and trade conditions, and internal as to production. Prof. Copeland has made a valuable collection of the experiences of business men in this direction as expressed in various publications. (10) The possibilities outlined

(8) Agstrom: Economics of Retailing, p. 6.
(9) Mitchell: Business Cycles.
(10) Copeland: Business Statistics.

therein are practically inexhaustable; business has as yet barely touched the surface of scientific investigation of business activities, the first phase of which is the accumulation of data.

These publications indicate somewhat the extent of the search for significant facts for administrative purposes. They do not, however, consider the significant facts ascertainable from financial statements, though many of the individual discussions are based upon facts accumulated by accounting. This is omitted apparently for two reasons. First, because accounting is considered as a field of business activity already well organized, and second, because business is reluctant to enter into purely statistical investigations until the possibilities of accounting alone are exhausted. The organizations which turn to statistics to supplement their accounting seem to be the successful, well managed ones -- those which have already cultivated accounting intensively in their search for control-data. Accounting is by no means conclusive as to final causes; when it brings a significant tendency to attention and indicates the direction investigation should take, it has served its purpose; only inquiry beyond the books of account will establish the ultimate causes of the tendency. It is to be noted, however, that the first clue usually comes from the accounts as expressed in the financial statements.

As an example, consider the case cited by Prof. Copeland:

> "In one big store with eleven motor delivery trucks. These routes were plotted on a city map. The daily delivery sheets for a year back were examined and the number of packages on each route tabulated and posted in that district. Study of this completed map disclosed the amazing fact that except July and August three-fourths of the store's sales were made in an area of less than one-fifth of the total

area of the eleven routes. There was no seasonal movement outside of this one very productive district. But here in the area of fair income, and social prominence, July and August deliveries fell off nearly 40 per cent from the normal level of the other months." - - - - - - - (11)

The clue which led to this profitable investigation was found in the accounting statements. The merchandise manager, "was not content to see normal expenses go hand in hand with an excessive drop in income." Accounting furnished the facts concerning running expenses and income; it also furnished the significant fact -- through comparative statements -- that expenses were normal and that the drop in income was excessive. These significant facts point to the conclusion: something is wrong with the sales. Investigation beyond the accounts, but suggested by them, have the result as stated above. With the causes of the condition plainly evident, it was a simple matter to alter the firm's advertising policy so that selling appeal would reach the people in those districts not practically depopulated during July and August. Those two months of that year were the first July and August, it is said, in the history of that enterprise to show normal income.

Instances could be multiplied without better giving point to the present argument, viz., that business activities can be controlled to the advantage of the enterprise through wise policies, backed by authority and founded upon significant facts brought to attention by accounting statements. It is the function of those engaged in the administration of business to scan all possible sources of pertinent information, to extract therefrom the significant facts, and to frame thereon such policies as did fair to increase the net income of the enterprise.

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(11) Copeland: Business Statistics - p.102.

Even conclusions drawn from facts, however, may be faulty and may profitably be verified before proceeding to put them into effect in new policies. This may take the form either of a personal review of the whole matter, or of the advice of a disinterested expert. Such an expert is the public Accountant, who, says Mr. Lesperre, "is the judge to whom appeals are made - - - - - by the trader, the manufacturer, and the financier, against the conclusions to be drawn from their accounts."(12)

Knowledge of the facts and verified conclusions drawn from them give control. Often, however, the proposition is stated omitting the central element of drawing conclusions, and apparently having control rest directly upon facts. Both Dickinson and Church go to the point directly to the point of control.

> "Accounts are devised - - - - to show his own incomings and outgoings, possessions and obligations in such full detail as will enable him best to control his affairs and to determine his own financial condition." - - - - - - - -(13)

> "The object of the organization - - - - - is to collect knowledge of what is going forward, not merely qualitatively but quantitatively; it should provide the means of regulating as well as recording." - - - - - - - - - - - -(14)

The Aim of Accounting.

Throughout the three periods into which accounting history divides itself, there is a continuous thread of purpose; the aim of accounting 4000 years B. C. is still the aim 4900 years later, viz., to provide a part of the data which must be used to make man master of his affairs.

In the primary period lasting up to the end of the 15th century, governmental officials, impelled by the necessities of financial administration, caused data to be collected concerning the state

(12) Lesperre: Applied Theory of Accounts - preface.
(13) Dickinson: Accounting Practice and Procedure - p. 1.
(14) Church: Science and Practice of Management - p. 41.

revenues and disbursements.[13] And, yet, in spite of the unquestioned usefulness of the facts collected, the great servicableness of statistical and more comprehensive data was not recognized and, as a consequence, accounting received only a meager development.

The intermediate period lasting from the end of the 15th century to the later 18th, was largely a period of formalism so far as accounting was concerned. The early years gave the starting impulse to the commercial world in the merchant trade of the Italians; they also gave the commercial world the method of systematically recording profits and losses. During the rest of this long period, the world seemed content to copy the models set by the Italians in accounting. Very little was added to either their system or their thought. Yet inasmuch, such accounting as was done, was for the purpose of supplying administrative data. Now it centered in finding the profit or loss from business transactions, whereas that in the first period merely entered the facts of governmental revenue receipts and disbursements.

Whatever significance was evident in the statement of these simple facts for the various commercial ventures was, to some, used to advantage, but the broader possibilities of accounting were still unrecognized. The purpose was seen to be that of furnishing administrative data, but administrative data was conserved very meagerly. A record of debts and a single calculation of profit and loss sufficed -- in a word, bookkeeping, and nothing more.

Toward the end of this intermediate period, after the Industrial Revolution in England had time to work itself out, there was some evidence of a tendency to break away from formalism in accounting.

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(13) Present day governmental accounting is little more than this.

Two ideas appear, one looking toward improvement of the technique, and the other toward modern cost accounting.

The improvement in technique comes from an accountant in Bristol, England -- Edward T. Jones.[16] He presents the idea (and claims to be the originator of it) of dividing the day book into several books of original entry, viz., Goods Sold, Goods Returned, Goods Bought, and Cash Book. In connection with these books he seems upon the point of establishing that important point of present day technical economy -- total posting, but he was then considering single entry and did not rise to the opening. In his double entry, however, (where these books are not used) he mentions incidently that the property amounts from the Cash Book are best entered in an abstract book and posted to the ledger in monthly totals. The abstract book was not a book of original entry, however. To him also must be credited the two column Journal, with its obvious advantage in securing accurate posting.[17] But he was in advance of his time and his suggestions were received with derision.

The cost accounting idea was put forward in 1832 by Charles Babbage, professor of mathematics in the University of Cambridge. He states that, "it is of great importance to know the precise expense of every process, as well as the wear and tear of the machinery which is due to it. - - - -one of the first advantages which suggests itself as likely to arise from a correct analysis of the expense of the several processes of any manufacture, is the indication which it furnishes of the course in which improvements should be directed."[18]

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(16) Jones' English System of Bookkeeping.
(17) The Journal heretofore had followed the Italian design wherein there was only one column; the debits and credits being indicated by suitable abbreviations beside the column.
(18) Babbage: On the Economy of Machinery and Manufactures -Chap. LX.

Railroads, too, was in advance of the commercial world; some fifty years were to elapse before cost accounting came in for much attention. It was soon its highest development in the United States.

With the growth of the factory system and the consequent ever-increasing attention to costs, the need for more effective accounting instruments was felt. And now that the restraining influence of formalism was proving less, accounting was seen to be a device which could be fitted to meet the growing needs of administration for more data. Accounting had always been the means of supplying a modicum of administrative data after a fashion; it was now seen to contain unexpected possibilities from the standpoint of administration. The greatest development since Paciolo followed upon it is recognition of the larger purposes of accounting.(21)

Within practically the last generation accounting has come to have the broadest significance of its history. John Stewart Mill says in his System of Logic that, "every one has daily, hourly and momentary need of ascertaining facts which he has not directly observed," and accounting is now looked upon as the source of such facts in business management. The same principle is thus stated by Harrington Emerson:

> "The object of records is to increase the scope and number of warnings, to give us more information than is usually received through our senses." - (19)

In another place accounting is described as the compass which, "must be depended upon to guide action to the desired objective point. It is to the government of persons and of every combination of persons what the science of navigation is to ocean travel."(20) With this broadening ideal

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(19) Emerson: Twelve Principles of Efficiency -- p.256.
(20) Allen Ripley Foote, before the American Association of Public Accountants, 1909.
(21) Author of the first work on double entry bookkeeping.

of the aims of accounting leaving the war, cost accounting has developed from nil to a science and there has grown up a discrete unrecognized body of doctrine which we designate Accounting Theory. "The theory of accounts," says Paul-Joseph Esquerre, "has been evolved from the study of economic and financial conditions, from the development of commercial methods, from careful analysis of the results obtained in industries old and new, from the application of the principles expressed by judicial decisions in litigation brought about through unusual solutions, from the doctrines of the law merchant, of the common law, and of modern statutes."(24)

Out of these elements which constitute accounting theory, economic conditions are the most fundamental. The foundation of accounting is economic; the other elements, such as commercial methods, legal doctrines, etc., tend to alter and modify the structure of accounting so that the existing practice is not what it would be were it purely economic in nature; they do not effect the ultimate foundation. Whatever the coloring given to accounting by the exigencies of commercial methods, or legal doctrine, the basic purpose still remains the expression of the working of economic principles. What has been called administrative data are in truth economic data suitable to administration.

It is the aim of business administration to control and co-ordinate business activities in the production of utilities and in carrying out this aim, accounting is an important factor. Its purpose is to supply an important part of the information upon which rests the control and co-ordination of activities. It is a means of symbolizing results and conditions; of translating occurrences into intelligible summaries and of furnishing data for the interpretation of economic and financial activities.

(24) Esquerre: Applied Theory of Accounts, Preface.

Chapter II.

The Accounting Base of Expression.

The function of the business executive, it has been shown, is to control and direct business activities by the intelligent application of the profit motive. In order intelligently to exercise this function he must have information upon which to base policies, and the limitations of time, space and memory preclude resort to direct observation. An artificial means of transcending these limitations is needed;[23] that need exists in the form of tabulations of figures, for figures are symbols which may serve to connect our thoughts with things.[24] With the aid of imagination conditions may be visualized from mere figures.

> "The executive sitting in his office examining the costs should be able, as the figures run before his eyes, to visualize the shop conditions to which they have reference -- the machines, the men, the materials, the connecting operations. Then, as the figures vary from the standard, imagination lends them a meaning that urges results. For as they vary from this standard the practical mind detects the possibilities which ability, authority and direction can correct to profit, or discovers evidences of a strength worthy of effort for duplication. Imagination makes cost figures a universal language of manufacturing." (25)

Although this is written from the cost accounting point of view it is equally applicable to the financial side of management. Figure representations of conditions are placed before the executive; with imagination he can reconstruct the actual conditions in his mind's eye; with a background of practical experience he can discover significance in their relationships; with a store of resourcefulness he can so adjust his policies as to cause advantageous changes to occur.

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(23) Wildman: Principles of Accounting, p. 4.
(24) Copeland: Business Statistics, p. 51.
(25) Franklin: Cost Reports for Executives, p. 20.

[illegible] the use of figures [illegible] executive's grasp of information is vastly [illegible] enabled to [illegible] easier, surveyed, and comprehended [illegible] these diverse forms, and represented in an identical form, in which form they may be dealt with as factors in mathematical problems." (26) Another writer, Mr. [illegible], whose [illegible] writing of summaries of accounting facts [illegible] of statistics [illegible] he said, "the proper function, indeed, of statistics is to enlarge individual experience," and again, "a chief practical use of statistics is to show relative importance, the very thing which an individual is likely to misjudge." (27) The words of another writer on statistical matters [illegible] also [illegible] of accounting principles. "One of the principal objects of statistics, it says, is to give us a bird's-eye-view of a large mass of facts, to simplify this extensive and complex array of isolated instances and reduce it to a form which will be comprehensible to the ordinary mind." (28)

Accounting undertakes, just as does statistics in a larger field, to extend the natural limits of the individual in his connection with a business enterprise; it endeavors to assemble data which would otherwise be ineffective because unknown, and to synthesize facts which would otherwise be without significance because seemingly unrelated. Closely related to statistics as it is by being concerned in part with the accumulation and classification of facts, accounting does not, however, present its essential data in statistical form. Such devices as charts, curves, averages, ratios, to say nothing of higher mathematics, are not employed in accounting as they well might. The balance sheet and the income statement have long been accounting's principal means of translating its data into "numerical pictures."

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(26) Allen Tighe Foote, op. cit.
(27) Bowley: Elements of Statistics, p. 7.
(28) King: Elements of Statistical Method, p. 12.

[illegible] the function of accounting, the next step is to examine its modes of expression. The question early arises: What data are assembled and what facts are synthesised. The answer is: the wealth-data of the individual business enterprise. It is to be noted that this statement marks certain limits. The facts dealt with are not, like those of economic statistics, data of world or state activities, (except in so far as governmental accounting works with state data); they are only those immediately associated with single business enterprises. It may also be noted that the wealth of the business enterprise and that of the proprietor are not the same in kind of quantity. It is customary to speak of the excess of assets over liabilities as the proprietor's capital (i.e. wealth), but there is implied the additional phrase: appropriated to this enterprise. A more definite term would be Proprietor's Investment.

Neither do the facts consist of data expressive of results measured in other than monetary units; they are, therefore, financial facts alone. One writer, an engineer, would have us understand that, "accounting in its broadest sense is the practical application of the science of quantities. It measures and records, not merely cash, but every kind of quantity that is concerned in the processes of business."(22) But as a matter of fact, the processes of business are filled with quantities which accounting never tries to differentiate. Only an engineer thinking of all business records as accounting would so define the field as to include foot-pounds, cubic feet, horse-power, etc. from its data. Executives can indeed, collect statistics of these and other quantities and use them in connection with accounting's financial facts to secure significant ratios,

(22) Church: Science and Practice of Management, p. 245.

...wall assets, etc., and this does not arise because of the operation of accounting principles. And if they are not subject to the principles of accounting theory and method, they could merely be called economic data. Wealth-data, as determined by accounting, are those facts pertaining to the organization and operation of single business enterprises which find expression in monetary units.(30)

...to the amounts and the methods used in the valuation of a business is concerned with things and rights -- with property and rights to property. In certain cases of ... building, ..., ... offices, ..., ..., ..., ..., ..., ..., ..., proper recording and adjustment of ... receive detail consideration; in such cases as these ... is an "accountability" to be expressed rather than a "proprietorship." But for the purpose of discussing basic elements, rights to property and property itself need not be distinguished and, therefore, may be treated under the one head, assets.

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(30) It should be observed that this view of ... and has a slightly wider connotation than it receives in economics. In the main, the wealth of a business enterprise consists of the "productive goods" of economics, but it also includes certain items which economics would not term wealth. Accounts receivable, for example, fall in the accountant's category of wealth, or assets, as he would use the term, whereas the economist would not regard them as wealth since they are not a "good". The accountant regards the "good will" item as having in its account receivable ... having value in itself. The economist, on the other hand, looking at this item from the social rather than the individual point of view, sees in it the danger of double counting, and thus it is strained to consell this account receivable account ... corresponding account ... in the other organization, in this way ... the social goods upon which the asset rests.

one of the essential categories of wealth-data is that called assets. Assets are defined by the Committee on Terminology of the American Association of Public Accountants (now the American Institute of Accountants) thus: property, tangible or intangible; resources of any kind capable of being converted into money or value. It is evident from this definition that data in regard to assets must be of great importance to those in charge of administration. The whole business process is one of securing or producing property and converting it into money or value; if there be not property data, there is little need for any other.

The other essential category of wealth-data is that termed, Equities.(1) A comparable term, still widely used, is Liabilities, but it is open to some objections since some are not inclined to view Capital Investment as a Liability. An Equity, as here used, may be defined as the claim or interest of some person, natural or legal, in the assets of a business. Equities, therefore, are but another aspect of Assets and are inseparable from persons. The term Assets regards the various resources as forming a tangible existence apart from individuals; the term Equities, however, regards the same resources as things claimed by individuals. Assets and Equities, then, are opposite and equal.

This equality is inevitable and always exists, as a moment's consideration will show. All of the assets will always be claimed by some one. If there are no liabilities to outsiders, the whole of the assets are rightfully claimed by the proprietor; if there are liabilities, certain outsiders will have, by law, a prior claim upon the assets and the proprietor's claim will consist of the remainder -- i.e. the free

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(1) Journal of Accountancy, Jan. 1917 -- W. A. Paton.

assets. No matter what changes occur in the assets and equities, they will remain equal in total.(42) Should the asset be increased without a corresponding increase in some other asset, then the amount of some equity must be correspondingly increased, or the impossible situation will result of having some assets unclaimed by anyone.

When assets and equities are known the fundamental facts of financial condition are known, for financial condition is merely a state of being possessed of certain claimed and claimable resources. It must be evident that information regarding financial condition is vital to the management of a business. Knowledge of the assets is knowledge of the character and extent of the resources -- the value which lies behind the enterprise as protection to the owner, investor or creditor. Knowledge of the equities is knowledge of the probable direction of distribution of the assets would take upon liquidation. To the investor equities show the claims in the assets which would outrank his claim; to the creditor they show something of the probability of early liquidation of his debt; to the manager they show the extent to which the obligations to outsiders may be encroaching upon the investment of the owners. Thus it is evidently as important for the owner, investor, or creditor to know the proportion of the equities one to another and to various kinds of assets as it is to know the form and extent of the assets themselves. It is not without reason, then, that a presentation of the assets and equities in the form of the balance sheet should have a place in accounting and that it should take precedent over all other accounting statements.

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(42) It is interesting to note how accounting consistently applies this principle even in stating the affairs of a bankrupt by indicating a deficiency as an asset to be met by the proprietor personally.

In its barest outline, the balance sheet consists of a tabulation in which the assets and equities are arranged opposite each other; assets on the left (except in Great Britain) and equities on the right with the latter subdivided into liabilities and proprietorship.

Balance Sheet.

Assets	xxxx	Equities	
		Liabilities	xxxx
		Proprietorship	xxxx

No balance sheet is, of course, considered presentable with mere totals shown; indeed, in practical business such a statement would be virtually useless for administrative purposes because of its lack of detail. But for the purpose of transaction analysis presently to be considered, this primary classification of accounting data into Assets, Liabilities, and Proprietorship is fundamental. As to the possible subdivision of these three classes, suffice it to say at this point that its character and extent is dictated by the nature and extent of the particular business under consideration.

But the other point remains to complete a working concept of the balance sheet, and that is its periodicity. The balance sheet expresses a state of affairs at a given moment. To the proprietor, it is an epitome of his business -- a cross section of his financial condition. Divorced from any other source of information he could find balance sheets very serviceable in indicating the progress of his affairs; although a single statement would not show progress, a succession of them might if the single statements were frequent enough. As each transaction

occurs a new balance sheet must be made; then the last statement will express the correct status. A comparison of the last two will show the proprietor what financial event has taken place. If, for example, the two statements showed that cash had been decreased and merchandise on hand increased by the same amount, the conclusion would be obvious that there had been a cash purchase of merchandise.

While such a succession of statements is plausible enough to contemplate and not at all incompatible with the nature of the balance sheet, there are nevertheless at least two reasons why such a procedure is impracticable in actual practice. In the first place, because the proprietor's interest in individual transactions, it would be an inefficient method of bringing each occurrence to his attention, because all of the items on the previous statement would have to be repeated whether they were changed or not. The proprietor's requirements could be more briefly expressed by merely stating the transaction itself unincorporated in a balance sheet.

In the second place, it is quite unusual to be interested in single transactions in the regular course of business. Aggregates have much more significance and it is impossible for one to accumulate aggregates mentally by scanning successive balance sheets. It is economy, therefore, to produce balance sheets only at fixed intervals, usually of a month or more. In the interim between statements the net ills regarding transactions are accumulated in ledger accounts, and from this source are obtained the facts summarized as needed for the statements. We may say, therefore, that back of every balance sheet (except the first) stands the ledger with its collected data. Indeed, if we may borrow a

simile from Chemistry, the ledger may be thought of as a saturated solution of facts ready to precipitate a balance sheet. Its merit exists solely for combining the facts in an orderly way which will ultimately be required to form the next balance sheet, and it is compiled from the entry of successive transactions as they occur. (33)

The transaction.

A tentative definition of a transaction might take this form: A transaction is a single business occurrence which causes a change in the form or quantity of the wealth of an enterprise. But definitions can seldom be broad enough to form complete concepts so it is necessary to consider an essential characteristic of all transactions which cannot well enter into a definition.

That characteristic is the two-fold aspect which every transaction possesses. It is an attribute which is somewhat difficult to describe. If accounting had been made to order, explanation of this phenomenon would probably be much easier. If, as Mr. S.F.Butterfield suggests (34) the left and right sides of the nominal accounts were reversed, then the assignment of increases and decreases would be completely logical -- then the left side would express in every account items favorable to the proprietor and the right side those unfavorable. And, continuing the thought, one aspect of the transaction would be the favorable-to-the-proprietor view and the other the unfavorable-to-the-proprietor.

The obvious objection to bringing this arrangement into use is that custom has fixed the practice otherwise and custom is not to be overthrown by efficiency ideas evolved centuries too late,

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(33) It would be irrelevent to the present thesis to consider the internal structure of the ledger.

(34) Logic of Municipal Fund Accounts --Journal of Accountancy, November 1916.

no matter how [illegible] by [illegible]. [illegible] helps us using feet and gallons as units of measure instead of the metric system which is [illegible]. Even if the internal structure of accounts were changed as suggested by Mr. Canfield, the "unfavorable and favorable" explanation could not help in understanding any of the internal transactions, (i.e. the transfers of value from account to account within the ledger) although it would do much toward simplifying explanation of [illegible] transactions of other types. For example, it taxes the imagination to conceive of either the increase of Reserve for Bad Debts account or the concurrent decrease of Surplus as favorable or unfavorable to proprietorship, and yet it is as much a transaction as is a purchase of lumber.

Sometimes the essential characteristic of the transaction is explained by saying one aspect represents cause and the other effect. But this aids very little. Consider the case in which merchandise is increased and cash decreased, $50. Here is an instance in which the disbursement is as much the cause of the purchase as the purchase is the cause of the disbursement. If either aspect of the transaction can be the cause at will then the statement above is no true explanation of an existing phenomenon.

Again, one aspect is sometimes said to indicate a benefit received and the other a benefit conferred. This is true of some transactions but not of all. In the cash purchase cited above in illustration, the "purchase" aspect may indeed be said to express the benefit received by the buyer in the form of merchandise and the "disbursement" aspect to express the benefit conferred on the seller in the form

of cash; but such an explanation would not fit an internal transaction. By no manner of fiction can the destruction of a building by fire be said to give rise to any benefit whatever either received or conferred. And yet it, too, is a transaction, for it is "a single occurrence which causes a change in the form or quantity of the wealth of an enterprise."

The true nature of the two-fold aspect of every transaction is most nearly expressed in a book only recently published. The writer says:

> "Accounting must keep two kinds of records; not a double or duplicate record of every business dealing, but a record which looks at every transaction from two points of view, viz., what effect it may have on the Assets and Liabilities, and what effect it may have upon Proprietorship." - - - - - - - -(38)

In the light of this idea even internal transactions can be understood. The loss of a building by fire would be a transaction presenting as one aspect the disastrous effect upon the Asset, Buildings, and as the other the equally disastrous effect upon the Equity, Proprietorship, both being suddenly decreased.

But even the above quoted statement, however greatly it improves upon the others, is defective in one respect. It implies that one aspect invariably has to do with an effect upon Assets and Liabilities, while the other has to do solely with an effect upon Proprietorship. This is not true, for a transaction may involve a change in two different Assets and not effect Proprietorship at all, as for example, the conversion of Account Receivable into Cash. This mild criticism is not intended in the least to impugn the excellence of the statement of principle; it merely gives point to the assertion that basic generalizations are difficult to formulate.

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(38) Lester: Accounting Theory and Practice, p. 79.

Understanding of a general principle is not difficult to communicate if sufficient explanation be given to obtain true insight into the problem; but the formulation of the statement of a general principle offers more difficulties. No better explanation of the principle underlying all transactions exists than is found in the fourth chapter of Col. Sprague's Philosophy of Accounts, yet even here it is not formulated into a concise generalization. The attempt now made to state the generalization takes this form:

> Every transaction presents, in a two-fold aspect, some combination of increased or decreased Assets, Liabilities, or Proprietorship.

These three categories --Assets, Liabilities, and Proprietorship --are all-inclusive; there are no facts of which accounting takes cognizance but fall under one of these three. As has been previously indicated, accounting deals only with such facts of business life as have an ascertainable money value. The business ability of the proprietor has no ascertainable value although it is indispensable to the business, hence it is not carried as an asset in the accounts of his enterprise. The obligation to compensate an injured employe has no ascertainable price until the injury is sustained and judgement awarded by the court, hence no liability for such appears in the accounts. Only those facts which have an ascertainable money value associated with the business find expression in the accounts. They are classified into three groups: things of value possessed by the business, i.e. Assets, claims of ascertainable value held by outsiders against the Assets, i.e. Liabilities, and the remaining equity of the proprietor in the Assets, i.e. Proprietorship. Occurrences can only have one of two effects upon either

of these three groups, viz., an increase or a decrease in its value

three classifies. There are, therefore, only six elements which can

be combined to form a transaction; they are:

Increase of Assets	Decrease of Assets
Increase of Liability	Decrease of Liability
Increase of Proprietorship	Decrease of Proprietorship

If these six elements at least two but not more than four in

combination to form a transaction; there can be none but two in such a

case the complex transaction is resolvable into units of two elements each.

There must be two accounts to be involved in every transaction,

for otherwise it would be impossible to make entries to create equilibrium

between.

The number of different combinations possible with six elements taken two at a time can be ascertained mathematically. The formula for the combinations of n things taken r at a time is:

$$nC_r = \frac{n!}{r!(n-r)!}$$

Substituting, we have,

$$6C_2 = \frac{6!}{2!(6-2)!} = \frac{720}{48} = 15$$

Thus there are fifteen possible combinations of increased or decreased assets, liabilities, or proprietorship. By resorting to the use of initial letters and algebraic signs, these fifteen combinations are as follows:

(1) + A; − L	(6) − A; + L	(11) + L; + P
(2) + A; + L	(7) − A; − L	(12) + L; − P
(3) + A; + P	(8) − A; + P	(13) − L; + P
(4) + A; − P	(9) − A; − P	(14) − L; − P
(5) + A; − P	(10) + L; − P	(15) + P; − P

Of these fifteen "couples", six must be eliminated as inconceivable in business. The six are:

(4) + A; − L
(6) + A; −
(10) − A; + L
(8) − A; + L
(11) + L; + E
(14) − L; − E

These six cases represent transactions which are inconceivable in business because if any of them were possible, the statement that Assets and Equities are always equal in total, would no longer hold, and the truth of this principle is indisputable. In further explanation, one of the above cases may be taken as typical of the group and examined. Item (4) will be the one to be considered.

The effect of this transaction would be, as the algebraic signs indicate, to increase total assets and at the same time decrease total equities (since liabilities --"L"-- are one class of equities.). Taking the two elements of the transaction as equal (as they invariably are) the result would be that the total assets would be greater than the total equities by twice the amount involved. But according to the definition of equities, they are only assets viewed from another direction and could not possibly be unequal. It follows, therefore, that the transaction under consideration could not exist in actuality since it would produce an impossible result. Similar reasoning applied to the remaining five cases would show all of them to be impossible in like manner. Hence they are excluded along with case (4). The nine remaining cases follow:

(1) + A; − L
(2) + A; + L
(3) + A; + E
(7) − A; − L
(9) − A; − E
(12) + L; − E
(5) − L; + E
(13) + E; − E

[illegible] fundamental accounting equation
expressed in present financial condition is the algebraic form of a balance
scale with the transactions as a fifteen unit in the pans. [illegible] a
graphic presentation is followed to help one appreciate some of the
fifteen combinations represent the possible situations [illegible] which the im-
possible. The six impossible transactions, if applied to the scale figure,
would throw it out of balance; four of the remaining nine would interfere
with the equilibrium of the left.

The nine types of transactions which can form
the framework of the fifteen of accounts transactions [illegible] becoming
most common, classify and record; [illegible] lead for more explicit forms
of expression in accounting. In addition to the balance sheet [illegible] un-
satisfactory, the value of analyzing occurrences solely as they affect
assets, liabilities and proprietorship. [illegible] balance sheet, in a word,
does not set forth the changes in proprietorship sufficiently fully.
Proprietorship, then, becomes the basis of [illegible] and supplementary state-
ment. This Income Statement as it is called, sets up [illegible] of the
changes in proprietorship due to operations and [illegible] of only
transactions which affect income directly. It will be well, however,
to keep the nine basic types of transactions in mind when preparing
supplementary statements, [illegible] which do not appear.

Some [illegible] explanations:

(1) + A; − A -- (A conversion, eg., of capital into property, or
(A conversion of an asset into [illegible].)

(2) + A; + L -- (Asset obtained [illegible].)

(3) − A; − L -- (An [illegible] called [illegible].)

(4) + L; − L -- (Conversion of an [illegible] into a note payable.)

[illegible] [illegible] [illegible] [

with investment of capital and [illegible] increase [illegible] upon operations. It is apparent, therefore, that there can be a change in the quantity of wealth [illegible] corresponding change in the proprietor's equity) because of either investment or operation. Investment is a financial activity in connection with entering a [illegible]; operation is the [illegible] activity producing changes in the quantity of wealth through carrying on the functions of the business. After a business is well started the cost of its activities and a large part of its success or failure occur in its operation. It is natural therefore that the effect of operations should be closely watched together with the resulting changes [illegible] assets.

The operation of a business causes variations to appear in the quantity of wealth possessed -- variations which are immediately reflected as changes in the amount of the proprietor's equity [illegible] in the amount of the assets. It is seen then that there are two ways of viewing an increase of wealth due to operations. On the one hand an increase is seen as a definite quantity of wealth -- a tangible, concrete thing; on the other, it is seen as a claim of the proprietor to that wealth -- a right to possession and use.

Comparative balance sheets will show these two points of view clearly. The figures in the following statement show that at the end of 1917, both net [illegible] on hand were each $1000 larger than a year previous. They also show that proprietorship was larger by $1000. It must be clear that regardless of the interim transactions, $1000 more cash was received than was paid, and that $1000 more goods were bought than were sold. There was, therefore, a tangible increase of available property of $1000 and since there is no evidence of larger claims by cre-

widow, it is natural to find the equity of the widow listed as proprietorship to indicate to the statement. The amount of the widow's claim is indicated by the $15,000.

Comparative Balance Sheets.

Assets.	Dec. 31, 1916	Dec. 31, 1917	Increase
Cash	$ 4,000	$ 5,000	$ 1,000
Accounts receivable	8,000	8,000	
Inventories	5,000	7,000	2,000
	$ 17,000	$ 20,000	$ 3,000
Equities.			
Accounts payable	$ 3,000	$ 5,000	
Proprietorship	14,000	15,000	$ 1,000
	$ 17,000	$ 20,000	$ 3,000

The proprietor's right to the increase lies in the fact that he and no one else has incurred the efforts -- cash he has advanced out of his capital and other costs have necessary to create the final increase of assets.(60) So it is, then, adverse to reason.

The additional claim in the asset, as it stands, does not materialize in full at the outset of starting the balance sheet; the amount of the claim changes with every economic transaction. Just as the $5,000 cash balance on Dec. 31, 1917 is the resultant of many cash receipts and disbursements, so proprietorship on the balance sheet is the resultant of many separate items of increase and decrease. As these items are currently recorded, the proprietor's account in the ledger might easily become an exhibit of the causes which affect the owner's claim in the assets.

If the accounts were kept in this way it would be necessary for all costs incurred, on the theory that the life from the costs could not be foretold at the time and that it would be most conservative

(60) See the classical economists' views on costs.

to show the expenditure for the plant value as a decrease of capital. Where expenditures are more controllable, these can be as reasonable charges to the income, such as the periods of depletion, but depreciation could be regarded as a diversion of the assets from property, but could, as in the case of, say, advertising, the results can not be definite enough, the expenditure could be treated as a decrease as a loss would be; i.e. as a decrease to proprietorship. Since the results appear on returns, say, of the sale of goods, these results are treated as if the goods never constituted an increase to proprietorship, because, as would be logical, of their profit. Increase of assets above plus and yearly profit. Also it is very hard for the cost accountant to ignore the results obtained, and he must be interested or billed to them as a result although results appear in the next succeeding period.

In accounting practice, however, it is found inexpedient then to drive all costs and all expense into the proprietor's account, practice is found to be compelled to adhere to separate records over the individual items. The result is that the costs and returns are temporarily divorced from the owner proprietorship account and are accumulated during the fiscal period in the so-called record of accounts, which, according to the Accountant's Committee on Terminology, consist of those accounts in which is recorded according to its nature any increase or decrease of wealth whenever realized or recognized. Economic accounts fall naturally into two groups as regards as they indicate an increase or a decrease to proprietors ip; the groups are termed Expenditures and Income respectively. The subdivision thereunder is infinitely various, depending upon the nature and extent of the business in the same way the subdivision

of assets depends upon the character of the business.

When these economic accounts have served their purpose of temporarily withholding the data from the proprietorship account, they are closed into a summary account which we term the Profit and Loss account. The balance of this in turn is transferred to the Proprietorship account. The net result in the latter account is made just as it would have been if every individual cost and return had been placed there at first.

With the use of economic and summary accounts, the procedure of transaction analysis must undergo some modifications. Whereas there were only three elements before in the analysis (viz. Assets, Liabilities, and Proprietorship) there now are five -- Expenditures and Income being added to the list. In a way, Proprietorship has been split into three parts. In one part (Expenditure accounts) are recorded the operation decreases; in another (Income accounts) are recorded the operation increases; in the third (Capital accounts) are recorded the changes in invested funds. The principle underlying all transactions[37] must, therefore, be expanded to meet the situation by adding this corollary:

> When a transaction involves an increase or decrease to Proprietorship because of operation, it will present in a two-fold aspect some combination of increased or decreased Assets or Liabilities, with an increase or decrease of Expenditure or Income.

The most common of these combinations follow, using the initial letters as before to indicate the terms.

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(37) See p. 36 ante.

A; I, (Sale of goods for cash or credit)
L; -, (Expense any like returned for credit)
A; -, (Cash paid for same)
A; I, (Credit given for goods returned or purchased)
L; -, (Wages accrued and not due)
L; I, (Expense supplies taken out by the seller.
A; I, (Interest discount taken.)

In analyzing economic transactions preparatory to entry in the records, it is necessary to determine which asset or liability account is involved and which expenditure or income account, and whether the chosen accounts are increased and decreased. This analysis is not as straight forward and simple as the analysis of financial transactions, for here there is often a question as to whether a given disbursement affects an asset or an expenditure account. A "Coal" account, for example, may in one case be an asset account and in another an expense account. If the latter, the end of the fiscal period will see the account closed into the Profit and Loss account along with other costs; if the former, the end of the period will very likely see the amount of coal actually consumed transferred into a "Power" account, and hence into "Product" as a part of the cost of producing whatever is manufactured. This procedure is the logical one, for coal used plays its part in increasing the utility of the product and hence may be counted as a part of the product's value in any desired computation

Under the peculiar conditions of manufacturing, cost accounting is able to carry out a great deal of the logical ideal suggested in the foregoing example, but elsewhere it is not possible to do so economically. Theoretically and logically all services and materials should be carried in asset accounts until consumed and then should attach to the product whatever it may be -- goods or services,[38] for if they do

(38) Journal of Accountancy, Vol. 1-17 --(W.A.Paton)

not due to its utility [illegible] disposed of completely. But in practice it is impossible to attempt to attach to each sale the costs which are chargeable to it alone because the task would be extremely difficult and the results when obtained not of sufficient significance to warrant the trouble. The costs are therefore separated only as to kinds (and perhaps divided between departments) and are summarized totals set off against the total returns.

In summarizing the section on the transaction it may be pointed out that in transaction analysis there are four elements to consider, viz., Assets, Liabilities, Incomes, and Expenditures, each of which may be increased or decreased. In many transactions there may be conflicting views as to which of two elements or which of the accounts in the sub-classification is affected. In manufacturing many transactions are treated as conversion of assets into other assets which in retailing would be treated as conversion of assets into expenditures. Where and how where the dividing line shall be drawn it is the province of the theory of Accounts to determine.

The single aim of translating the transaction into an entry under the guidance of the principles of accounting theory, is to cause the record to express the truth of the occurrence briefly and concisely. As a mode of expression the entry is rather technical; it is designed to express to the initiated in a very abbreviated way the facts from which the statements are built. The statements, however, are not so technical, being designed to express to the layman the achievements of the enterprise. [illegible] financial results are then expressed [illegible] in connection with the balance sheet; there remains for consideration the way accounting affects the [illegible].

the income statement.

[illegible] of [illegible] the proprietor was [illegible] decreased because:

1- goods were purchased for cash,
2- expenses were incurred for:
   a- operating
   b- selling
   c- administering
   d- financing
   etc.
3- fixed assets have depreciated.

[illegible] of the proprietor was [illegible] increased because:

1- goods were sold,
2- rent was [illegible],
3- interest was [illegible],
etc.

[illegible] factors [illegible] account [illegible] proprietorship [illegible] the period is a result of operations; the details tell [illegible] have been invested or [illegible] in carrying on the business. In explanation of this, one item may be considered as typical, say, wages. The result of paying wages is a decrease in cash, a change in an asset apparent in the balance sheet; but it is not ascertainable from the balance sheet whether the change was due to wages paid or to something else. The cause of paying wages is the consumption of services and it is shown in the Income Statement. Logically the cause there shown should be labled "Services consumed", but practically this is understood in the phrase as it does appear, "Wages- Selling Department." Other operating transactions would show similar dual characteristics.

Both statements, it will be seen, are necessary to give expression to both aspects of the occurrences. If all of the operating transactions of a period could be traced through as above, the counterpart of every increase or decrease of wealth as shown in the Balance Sheet would be found faithfully reflected in the Income Statement; for every

operating result in the one statement there will be a corresponding one in the other.

Isolated entries, however, do not appear in the statements; they are found in the ledger from which the statements are summarized. It is therefore impossible from the statements to say that this particular increase of profit in cash is due to that particular item in the Income statement. The separate items can be disentangled by reference to the ledger, but ordinarily isolated transactions are not significant to the executive, so the statements are the more useful by reason of being summaries. While the details lie hidden in the ledgers, the statements maintain their relationship of cause and effect just as truly as if they expressed but a single transaction. The picture the executive sees is that of a composite transaction consisting of many kinds of assets, and many kinds of expenditures and incomes, but according to his ability to see any significant relationship between the various figures in the composite picture, he is able to read well or ill the course the business has followed.

The technical form of Income statement seems to lend itself very well to visualizing both sides of the activities and thus in helping to bring causes and effects into alignment. It would be expected, then, that this would be the favored mode of presentation, but unfortunately it is not. The reason is not far to seek. The majority of business men do not have the technical knowledge of accounting necessary to realize fully the intimate relationship of the Balance Sheet and Income statement. The advantage of the technical form, which is that when it is used conjunction with the Balance Sheet it shows more clearly the two aspects

of operating transactions -- this advantage is not apparent to some and the result is that they seem to favor the other form which seems more understandable. This other form is called the report form of Income statement.

Whereas the technical form leads one to think of the causes of increased and decreased wealth, the report form suggests to the mind the application of the income to the discharge of variously incurred costs. This suggestion rises largely in the way the items are arranged on the report form. The statement begins with the amount of the income from various sources. From this is successively deducted the several classes of expenditure. First, those relating to the goods bought to resell, then the selling costs, administration, financial, etc. costs. The remainder after the last subtraction is the amount of the income left for the proprietor.

This plan of deducting costs gives into relief the economic idea of costs being repaid out of income after being advanced out of capital, and appeals to the business man because it emphasizes his thought that his profit is a remainder of the product. This is a true concept of profit, to be sure, but the question is, Shall the Income Statement be for the purpose of expressing a clear concept of profit or shall it be for the purpose of presenting facts in such a way as to aid in getting at causes and effects. It is not denied that the report form may be so analysed and studied as to show the relation of effort and result as well as any other, but it does seem that the technical form makes such analytical study more likely to receive attention.

The executive, it was seen, must look to accounting for a large part of the data upon which to base his policies of control. It is the duty, then, of accounting so to give expression to the facts it gathers as best to serve the executive's purpose. Will this purpose be best served by the technical or the report form of income statement?

The answer lies partly in the ability of the executive. He must be given that form of statement which he personally can understand best; the less instructive form were better, if understood, than the more instructive, not understood. At present the preferred statement seems to be the report form, because, in a word, the other is too technical. But it is a mistake to assume from his preference that that form is the best means of conveying to him the information he should have. It may be the one he can use best, but it is not the one he ought to be able to use best.

There seems a growing tendency in text books to neglect the technical form of income statement. If it can be shown that this form will better serve to connect cause and effect in business, that is the form business men should be trained to use where the training aims at producing men who can use accounting data to the best advantage. Accounting is, without question, a technical subject; it is only slowly reaching out toward the dignity of a science. As a part of the technical training of business men it is as fundamental as mathematics to the trained engineer. As mathematics is more than arithmetic, so is accounting more than bookkeeping -- more than merely the keeping of records. Bookkeeping is an end in itself; bookkeeping is clerical. Accounting is a means to an end; accounting is an aid in the formation of judgments.

-training in accounting should be technical, not clerical; it should be training in the science, not the art alone. If accounting is to have any claim to being a science or an instrument of science, it must gather, analyze, and present data scientifically, i.e. in a way to reveal and unite cause and effect. It must begin with a sound formulation of purpose; it must build with that purpose consistently in view; it must present its data in that form which is most calculated to reveal the actual facts significant to its purpose regardless of individual preferences, and it must, if necessary, teach men to understand its forms of expression so that its full utility may be realized. Builders, of shops or businesses, must learn to construct and read their blue-prints. But the working drawings are to the one, the accounting statements are to the other.

The present discussion was aimed at two things, first, to point out the function of accounting, and second, to consider briefly the principal modes of expression that function.

Cost is a good illustration of a principle pertaining to predictability of the future and purposes; the only costs for which is allowed to appear. Every device of accounting has meaning in the terms of concrete, economical full value, and essentially of financial data serviceable to the control function. Every principle of accounting has basis in the purpose of its selection, analysis and presentation: each fully as to promote a significant insight of the true financial condition and actual profits of a business.

The function of accounting finds its principal expression in the balance sheet and income statement. In the balance sheet it

pressure to the administrative organization from which relief of the enterprise's results--the results of the investment and operation. In the income statement is given expression to the idea of profit which should serve the interest in the growth or solidity of the business which constantly tends to run ahead of the facts which explain it. The two statements studied together help to visualize the activities of the business and to nullify the physical limitations of the executive, or any other person interested in the affairs of the enterprise.

The function of the business administrator is to control and co-ordinate various activities in the production of profit, and to assist in carrying out this function he is provided with funds. It serves as a means of communicating occurrences to him in that form which is most serviceable, viz., a brief summary. Its purpose is to supply an important part of the information upon which the most of necessary decisions in the formation of policies. By its balance sheet and income statement, it affords the means of interpreting the economic and financial activities of the past and of associated cause and effect. Guided by past experience thus summarized, it devolves upon the executive to perpetuate the favorable factors and to eliminate the unfavorable to the ultimate advantage of the enterprise. In a word, the economic function of accounting is to act as an efficient instrument to the desk of the business executive, investor, or owner in controlling their affairs -- an instrument of precision, a chart and compass by which to steer their course through the sea of economic life.

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Appendix.
Notes on Bibliography.

Whatever has already been written about the second ic Function of Accounting is to be found scattered here and there in articles and parts of chapters in various books; there is no literature dealing with the subject as such. No thorough analysis of the purpose and function of accounting is available; most often the purpose is only briefly mentioned or left to be implied from the context. But the value of clearly defined aims is unquestioned and the discussion thereof may well be closed with a brief resume of the bibliography available.

Although space for ids the inclusion of much of the historical in this thesis, mention should be here made of the principle sources because of the background they have given to the subject matter that is presented. The earlier periods are admirably covered by Brown: History of Accounting and Accountants, and by Woolf: A Short History of Accounting. Both of these are general histories based upon extensive examination of archeological data as well as the study of german researches and such books and documents as have come down to us from mediaeval times. A translation of some of these last that is of great interest has been made by Mr. Geisjesbeck in Ancient Double Entry Bookkeeping. Herein reproductions of the first book on accounting (Paciolo: De Computis) with line by line translation place before us the earliest texts known (Paciolo, 1494); other similar translations show the work of his immediate successors and imitators in Holland and England.

both general histories whose methods contain [illegible] public register of old accounting texts; several of the accountants' libraries in Great Britain contain many of the old books themselves.

Accounting's development being co-incident with the rise of commerce, naturally suggests histories of commerce and industry as sources of background. Among these may be named, say: History of Commerce, Cunningham: Growth of Industry, and Olivetti: Venice.

Throughout even the earliest history of accounting definite purpose is discernable. Then as always it has functioned as the record of past activities and guide to future activities in commerce and industry, which is but saying: to future economic activities.

With the drifting of economic activity more and more strongly toward industry, the administrative purpose of accounting came more into consciousness. The first result of this is to be seen in the appearance of better books and records with more information provided. A good example of this stage exists in,Jones: English System of Bookkeeping, where columnization and total posting was mentioned and advocated. The other, and more modern result, is the trend to emphasize the use of accounting rather than to formally the method of recording the data. With the shifting of emphasis from data record to data use, one finds a broadening of the concept of accounting and a more lively appreciation of the administrative purpose, which, to be sure, had always been felt but until lately only faintly.

The traditional accounting point of view of the professional has been a rather narrow financial one. The greatest concern was for the integrity of the investment. That this was the fact

is not surprising when one considers that the beginning of accounting as a profession dates from about the time the concept of a permanency of investment developed out of joint ventures and the periodic division of investment, and when one considers the additional fact that education in the profession was until lately practically limited to assumption of tradition and method by direct association with accounting work. Further evidence of the finincial view point of accountants is to be found in the great emphasis that is laid upon the balance sheet in the works of the earlier of the modern writers, such as Mr. Dicksee, and Mr. Lisle in Great Britain and Mr Hatfield in the United States.

In the later writers on accounting theory there is subtile evidence of a tendency to stress the profit and loss statement and the analytical, intrepretative side of accounting. In Esquerre: Applied Theory of Accounts, and Dickinson: Accounting Practice and Procedure, the material is enriched with discussion of pure theory and by the absence of excessive explanations of systems and illustrated forms. Theory discussions, be it noted, arise only in response to a felt need and aim at clarifying concepts so as to insure a more adequate fulfillment of purpose.

Sprague in his Philosophy of Accountslays down the immutable principles of accounting which have served as a point of departure for writers ever since. Here we in principle of Accounting or Reproduction, it is [illegible] the discussion in Chapter II of this thesis. More clearly perhaps and elsewhere in the modern trend appears in Wilcox: Principles of Accounting and Kester: Accounting Theory and Practice. In these two works the administrative purpose of accounting is clearly stated briefly presented and is maintained throughout as the background of the discussion.

In cost accounting [illegible]

[illegible] financial [illegible] more [illegible]. The more important discussions in this field are:

[illegible]: Cost Accounting, Methods and Practice.
Church: Manufacturing Costs and Accounts.
[illegible]: Principles and Practice of Management.
Scovell: Cost Accounting.
Franklin: Cost Reports for Executives.

In all of these accounting is regarded as an instrument in the hands of the operating executive [illegible] policy-forming facts. Naturally the policies most commonly are production policies. Financial policies are not to be overlooked, of course, but they tend to be fiscal [illegible] secondary; the business problems [illegible] more production problems than they are financial.

The importance of accounting in furnishing administrative data is well seen in two late books which deal with accounting facts but not accounting. They are -- Copeland: Business Statistics, and Peterson: Graphic Methods of Presenting Facts. These writers are concerned primarily with correlating and presenting forcibly facts already accumulated. The naturally look to accounting for a large portion of their data. In both books the compilation of data for useful purposes extends somewhat beyond the field of accounting per se. Indeed, one may say, accounting data as there used become the data for the solution of economic problems in production, distribution, etc.

Consideration of the various books in even t is short bibliography shows that accounting has an economic function to perform, that accounting is capable of rendering distinct service to administration of affairs, and that the possibilities of accounting are being recognized and utilized.